



BAUHINIA SPECIES AVAILABLE IN CHITTOOR DISTRICT OF ANDHRA PRADESH AND IT'S LOCAL USES

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ABSTRACT

Ayurveda is an ancient Indian traditional system of medicine. The integral system of Ayurveda is based on the natural sources specifically medicinal plants. Now -a-days the use of plants as a healer has been getting the highest consideration, as it plays an important role in public health and wellness. India has about 4.5million plant species and among them estimated 2,50,000 -5,00,000 plant species have found to have pharmacological properties.

Bauhinia is a genus of trees, shrubs or climbers that belongs to the legume family; Fabaceae under its subfamily Cercidoideae. Bauhinia species are popular ornamental plants, usually woody ornamentals or herbaceous. In this present study, mentioned about the morphological differentiation of Bauhinia Species and along with its utility which are available in South India. On survey in our surrounding fields we come across the following species available i.e., Bauhinia purpurea Linn. (Rakta kanchanara, Kovidara), Bauhinia variegata Linn. (karbudara), Bauhinia tomentosa Linn. (Pita kanchanara), Bauhinia racemosa Lam. (Sveta Kanchanara), Bauhinia malabarica Roxb. and Bauhinia vahlii wt. & Arn. Bauhinia being a large genus and abundantly useful in alleviating diseases. So, morphological identification of plant species is utmost important because misidentification may lead to harmful effects on mankind.

KEYWORDS: Rakta Kanchanara, Kovidara, Karbudara, Pita Kanchanara, Sveta Kanchanara, Morphological Identification

1. INTRODUCTION

Bauhinia is a large genus belonging to the sub-family Cercidoideae. It is pantropical and consists of 500 species and is most abundant in the neotropics (Lewis et al.2005). "Bauhina" was named after two Swiss botanists, the brothers Gean Bauhin (1541-1613) and Gaspard Bauhin (1560-1624), suggesting a brotherly relationship in its commonly bilobate leaves, Bauhinia comprises trees, shrubs and tendril climbers.

2. CLASSICAL REFERENCES:

Kanchanara is the synonym of Kovidara during the Vedic and Samhita Period. In Brihatrayi, there is no mention of Kanchanara but Kovidara and Karbudara have usually been interpreted to be 2 varieties, which is now known as Kanchanara. Acharya Caraka has mentioned both Kovidara and Karbudara in Vamana dravya kalpa (C.S.Vi- 8/35)^[1]. While Susruta has placed them under Urdhva bhagahara dravya (S.S.Su - 39/3)^[2] and he has also placed Kovidara in Kashaya varga (S.S.Su- 43/23). In Bhavaprakash Nighantu, Kovidara is mentioned in Guduchyadhi varga^[3]. In Abhidhana ratnamala (Sadrasa Nighantu) Kovidara is mentioned in kashaya dravya skandha^[4]. In Raja Nighantu, Kanchanara is mentioned in Karaviradi varga^[5].

3. BOTANICAL DESCRIPTION OF DIFFERENT VARIETIES OF BAUHINIA SPECIES:

3.1. Bauhinia purpurea Linn.

Sanskrit name: Rakta kanchanara, Kovidara
Butterfly tree, Geranium tree, Orchid tree

A medium sized, evergreen ornamental tree, found throughout India, ascending to an altitude of 1300m in the Sub- Himalayan tract^[6].

Bark: Dark grey or brown, pink to pale yellow inside

Leaves: Rigidly Sub- coriaceous, glabrous, shallowly cordate (as shown in Fig. 1)

Inflorescence: terminal and axillary few flowered corymb racemes

Flowers: Varying in colour from white to purple in terminal and axillary short peduncle few flowered corymbs. (as shown in Fig. 2)

Calyx: 2-4cm long splitting into 2 from above and upto 5 from base, oblong

Corolla: oblongate, long – clawed petals, 3.5 – 5 x 1-1.5cm

Pods: Firm, flat, glabrous, 12-15 seeded

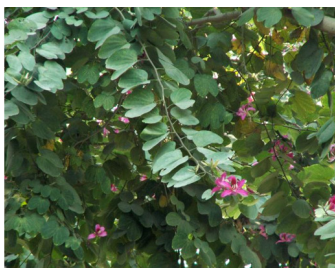
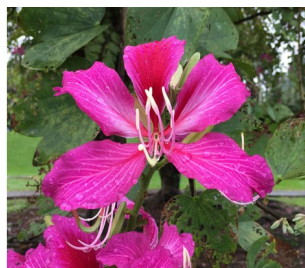
Flowering: September – February

Stamens: 3 (5), Ovary compressed, Ovules many as per locule^[7].

Fruiting: January - April

It bears fragrant flowers of varying shades from purple, deep rose to lilac from September to December.

The species is heavily parasitized by Dendrophthoe falcata (Linn.f) attack the roots and kills most of them.

Fig. 1: *Bauhinia purpurea* Linn. LeavesFig. 2: *Bauhinia purpurea* Linn. Flower**Utility:**

1. The stem bark acts as an astringent in diarrhea.
2. Its decoction is recommended as a useful wash in ulcers.
3. The flowers is laxative and anti-helminthic
4. The bark or root and flowers mixed with rice water are used as a maturant for boils and abscesses.
5. The root is carminative but root bark is poisonous.
6. The flower buds are eaten as a vegetable and also pickled.

3.2. *Bauhinia variegata* Linn.

Sanskrit Name: karbudara

Buddhist Bauhinia, mountain ebony, orchid tree

A medium sized, deciduous tree, found throughout India, ascending an altitude of 1300m in the Himalayas^[8].

Bark: Grey with longitudinal cracks, pale pink inside

Leaves: alternate, lamina oblong in outline, bilobed upto $\frac{1}{4}$ - $\frac{1}{3}$ from tip, 9-15x 7-10cm, base, cordate, lobes obtuse (as shown in Fig. 3)

Petioles: about $\frac{1}{4}$ the length of lamina, hairy

Inflorescence: of lateral, few flowered corymbs appearing before leaves

Flowers: Large, sweet-scented, pink with uppermost petal darker and variegated 8-10cm across. (as shown in Fig. 4)

Calyx: Spathulate, 3-4.5cm long, 5 toothed

Corolla: 5 petals, 4-5cm long, obovate-oblong with purple veins

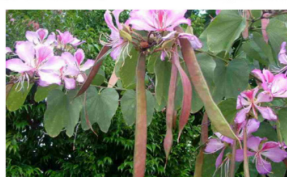
Stamens: 5

Fruit: a flat, oblong pod of 15-30x 2.5cm glabrous, reticulate on both faces (as shown in Fig.5)

Seeds: 10-15

Flowering: February – march

Fruiting: May – June^[9]

Fig. 3: *Bauhinia variegata* Linn. LeavesFig. 4: *Bauhinia variegata* Linn. FlowerFig. 5: *Bauhinia variegata* Linn. Fruits

The tree is seriously damaged by the phytophagus mite, *Eutetranychus uncatus* Garman. The plant is parasitized by *Dendrothoe falcata* which is controlled by spraying diesel oil

Utility:

1. The root is carminative and is used in dyspepsia and flatulence
2. A decoction of the root is reported to prevent obesity
3. The bark is astringent, tonic and anti-helminthic
4. It is useful in Scorfula and skin diseases
5. It is used for ulcers and skin diseases
6. A decoction of the bark is taken for dysentery by the Nagas
7. The flowers and flower buds are pickled
8. The dried buds given in cough, piles, haematuria and menorrhagia
9. Flowers are laxative
10. The bark yields a fibre, it is used for dyeing and tanning
11. The bark is astringent to the bowels, tonic to the liver, cures biliousness, leucoderma, leprosy, dysmenorrhea, menorrhagia, impurities of blood, tuberculous glands,
12. The root is anti- dote to snake venom (Mhaskar and caius)
13. The root is prescribed in combination with other drugs for the treatment of snake-bite (caraka, susruta)^[10,11]

3.3. *Bauhinia racemosa* Lam.

Sanskrit Name: Sveta kanchanara

Deciduous, bushy tree 7-9m tall, branchlets densely tomentose^[12] (as shown in Fig. 6)

Leaves: 3-4.5x4.5x6cm divided to about $\frac{1}{3}$ way down, Glabrous, 9 nerved, ashy

Petiole: 1.9-2.3cm long

Flowers: small, white in axillary or terminal panicles (as shown in Fig. 7, 8)

Stamens: 10, anthers –pilose

Fruit: an oblong pod, 15-20cm long, 1.5-2.5cm broad and generally turgid (as shown in Fig.9)

Seeds: 10-20, oblong, compressed and black in colour^[13]

Flowering: April- June

Fruiting: September – May

The plant is moderately parasitized by *Dendrothoe falcate*. *Xanthomonas bauhiniae* padhya etal. attacks the leaves and reduces their market value for bidi manufacture.

Fig. 6: *Bauhinia racemosa* Lam. TreeFig. 7: *Bauhinia racemosa* Lam. Inflorescence

Fig. 8: *Bauhinia racemosa* Lam. FlowerFig. 9: *Bauhinia racemosa* Lam. Fruit**Utility:**

1. The bark and leaves are Madhura and kashaya rasa act as anti-pyretic, Vermicide, urinary tract infections, thirst, headache, anal fistula, tuberculous glands, Skin diseases, tumours, diseases of blood, chronic dysentery and diarrhoea.
2. The fruit is kashaya and Madhura, removes kapha and vata, the fibre is used to stitch wounds.
3. Decoction of the leaves is used to alleviate headache in malarial fevers.
4. The gum is used medicinally in South India^[14].

3.4. Bauhinia malabarica Roxb.**Habit:** Moderate sized deciduous trees^[15]**Bark:** brown, rough, wood reddish brown with darker patches, hard**Stems:** rough, glaucous when young**Leaves:** acid and adnate to 3/4th the length, oblong, base cordate, glabrous and beneath, Nerves 9 from base, prominently reticulate. (as shown in Fig.10)**Flowers:** Pale, yellow, in axillary racemes (as shown in Fig.11)**Stamens:** 10, alternately 5 long, fertile and 5 short, sterile**Pods:** flattened, rugulose, puberulous**Seeds:** 10, ovoid, flattened**Flowering and fruiting:** July- DecemberFig. 10: *Bauhinia malabarica* Roxb. TwigFig. 11: *Bauhinia malabarica* Roxb. Flowers**Utility:**

1. An infusion of new flowers is given in dysentery^[16].

3.5. Bauninia tomentosa Linn.

Sanskrit Name: Phalgu, Pita kanchanara

An erect shrub (as shown in Fig.12), found in the plains southward of delhi, in peninsular region and in west bengal^[17].**Leaves:** Broader than long, coriaceous, pubescent below**Flowers:** with distinct odour, usually axillary, pendent and half open, yellow with a maroon dot at the base of the central petal (as shown in Fig.13)**Stamens:** 10^[18]**Flowering:** June to February**Fruit:** distinctly stalked, glabrous, 6-10 seeds (as shown in Fig.14)

It is often cultivated in gardens for its fragrant and pretty yellow flowers

The rust *Uromyces vestergreni* Syd. is recorded on the plantFig. 12: *Bauninia tomentosa* Linn. ShrubFig. 13: *Bauninia tomentosa* Linn. FlowerFig. 14: *Bauninia tomentosa* Linn. Fruit**Utility:**

1. A decoction of root bark is prescribed for liver diseases and as a vermifuge
2. Infusion of the stem bark is useful as an astringent gargle
3. The leaves constitute an ingredient of a plaster applied to abscess
4. The dried leaves, buds and flowers are used in dysentery
5. All parts of the plant are recommended in combination with other drugs for the treatment of Snake bite and scorpion sting (susruta)
6. In case of snake-bite the fresh seeds are made into a paste with vinegar and applied externally to the part bitten
7. On Malabar Coast, a decoction of the root bark is administered in inflammation of the liver
8. The decoction of the root bark is also used as a vermifuge. The bruised bark is externally applied on tumors and wounds
9. The native practitioners in southern India prescribe the small dried buds and young flowers in dysentery
10. The fruit is diuretic, an infusion of the bark is used as an astringent gargle^[19].

3.6. Bauhinia vahlii Wt&Arn:An immense climber (as shown in Fig. 15) with wide spreading stems upto 1.2m girth^[20].**Bark:** rough, dark reddish brown or blackish, blaze tough and fibrous, bright pink with white or yellowish bands slowly turning orange-brown on exposure.**Branchlets:** often terminating in a pair of revolute tendrils. Young parts fulvous or rusty- tomentose**Leaves:** cleft 2.5- 9cm. measured from the base of the cleft to the tangent to the 2 lobes, base deeply cordate, 10-45cm, long

by about as broad, glabrescent above when mature, more or less densely tomentose beneath, base 11-15 nerved(as shown in Fig. 16).

Petiole: 7.5-15cm long, stout, tomentose

Flowers: 3.8-5cm, across, white turning buff as they fade, in peduncled corymb terminal densely tomentose racemes (as shown in Fig.17, 18).

Flowering: February - July

Pedicles: 2.5- 6.3cm long

Pod: 23-30 by 5-7.5cm, flat, woody, rusty-velvety

Seeds: 6-12, sub- orbicular, 2.5cm. diam., flat, dark brown, polished.



Fig. 15: *Bauhinia vahlii* wt&Arn Creeper



Fig. 16: *Bauhinia vahlii* wt&Arn Leaves



Fig. 17: *Bauhinia vahlii* wt&Arn Flower



Fig. 18: *Bauhinia vahlii* wt&Arn Inflorescence

Utility:

1. The seed possess tonic and aphrodisiac properties.
2. Leaves are demulcent and mucilaginous.
3. The roots are used for the pulmonary tuberculosis and root juice used in dysentery and root decoction used in fever.
4. In some places root of *Bauhinia Vahlii* is used as tooth brush to cure the pyorrhea and root extract for treatment of virus induced disease with specific gravity toward herpes simplex.
5. Leaves used in the treatment of abrasions.
6. Fruits used for anti-fertile in women and used as aphrodisiac.
7. Bark is useful for skin disease, diarrhoea and pod taken orally as anti - diarrhoea, anti -dysentery.
8. seed used in the treatment of pimple and blister.
9. Paste of seed is applied to boils and given to children for indigestion.
10. *Bauhinia vahlii* used in a hoof diseases; boils carbuncle post claving care^[21].

S.No.	Name of the Plant	Leaf shape	No.of Stamens	Flow-ering season	Colour of the Flower
1.	<i>Bauhinia purpurea</i> Linn.	Bilobate	3	Sep - Feb	Purple

2.	<i>Bauhinia variegata</i> Linn.	Bilobate	5	Feb - Mar	Pink Upper most petel is more darker and Variegated
3.	<i>Bauhinia tomentosa</i> Linn.	Bilobate	10	June - Feb	Yellow
4.	<i>Bauhinia racemosa</i> Lam.	Bilobate	10	April- June	White
5.	<i>Bauhinia malabarica</i> Roxb.	Bilobate	10	July - Dec	White or Pale Yellow
6.	<i>Bauhinia vahlii</i> wt. & Arn.	Bilobate	10	Feb - July	White turning buff as they fade

4. DISCUSSION:

Kanchanara is a medicinal tree domestic to temperate and tropical Indian region used in Ayurvedic system of medicine for a long time. Kanchanara is the synonym of Kovidara during the Vedic and Samhita Period. In Brihatrayi, there is no mention of kanchanara but kovidara and karbudara have usually been interpreted to be 2 varieties, which is now known as kanchanara. Acharya Caraka has mentioned both kovidara and karbudara in *vamana dravya kalpa sangraha* (C.S.Vi- 8/35). While Susruta has placed them under *Urdhvabhagahara dravya* (S.S.Su – 39/3) and he has also placed kovidara in *kashaya varga* (S.S.Su- 43/23). In Bhavaprakash Nighantu, Kovidara is mentioned in *Guduchyadi varga*. In *Abhidhanaratnamala* (Sadrassa Nighantu) kovidara is mentioned in *kashaya dravya skandha*. In Raja Nighantu, Kanchanara is mentioned in *Karaviradi varga*.

After going through the Samhitas, Nighantus and co-relating its morphological characters with a lexicon of Indian medicinal plants, kanchanara varieties can be differentiated based on Shape of the leaf, flowering season, Colour of the flower and presence of number of Stamens. *Bauhinia purpurea* Linn., *Bauhinia variegata* Linn., *Bauhinia tomentosa* Linn., *Bauhinia racemosa* Lam., *Bauhinia malabarica* Roxb. and *Bauhinia vahlii* wt.& Arn. varieties are available in Chittoor district of Andhra Pradesh. *Bauhinia purpurea* Linn. is having purple colour flower with 3 stamens and its flowering season during September to February. *Bauhinia variegata* Linn. is having Pink colour flower with uppermost petal darker and variegated with 5 stamens and its flowering season is during February to March. *Bauhinia tomentosa* Linn. is having yellow colour flowers with 10 stamens and its flowering season is during June - February. *Bauhinia racemosa* Lam. is having white colour flowers with 10 stamens and its flowering season is during April to June. *Bauhinia malabarica* Roxb. is having white or Pale Yellow colour with 10 stamens and its flowering season is during July to December. *Bauhinia vahlii* wt.& Arn. is having flowers with white turning buff as they fade with 10 stamens and its flowering season is February to July.

5. CONCLUSION:

Kanchanara is a wide variety of flowering plants most abundantly used in alleviating diseases. Most commonly

Bauhinia species are having bilobate leaves though it varies in length and breadth of the leaf, still it leads to confusion. So to get rid of this confusion a detailed morphologically differentiating characters are mentioned. Thus, it may conclude that kancanara varieties can be differentiated basing on Shape of the leaf, flowering season, Colour of the flower and presence of number of Stamens. Misidentified medicinal plant species, sub species or variants are either less therapeutically effective or inactive and may potentially contain harmful compounds. So, thorough and correct identification of correct plant species is essential.

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